REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 23-33 are pending, with Claims 1-22 canceled and Claims 23-33 added by the present amendment.

In the Official Action, Claims 19-22 were rejected under 35 U.S.C. § 101; Claims 1-6, 8-9 and 11-22 were rejected under 35 U.S.C. § 102(b) as being anticipated by Famolari et al. (U.S. Patent Publication No. 2002/0105926, hereinafter "Famolari"); and Claims 7 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Famolari in view of Cannon et al. (U.S. Patent No. 6,067,444, hereinafter "Cannon").

Claims 1-22 are replaced by Claims 23- 33 to more clearly describe and distinctly claim Applicants' invention. Support for these new claims is found in Applicants' originally filed specification.[1]

Briefly recapitulating, new Claim 23 is directed to

A packet communication method for packet communication between a first packet communication terminal and a second packet communication terminal, comprising:

maintaining, at the first packet communication terminal, a database of potential network addresses corresponding to said first packet communication terminal;

sending database add and delete messages from the first packet communication terminal to the second packet communication terminal to enable the second packet communication terminal to maintain, at the second packet communication terminal, a local database of potential network addresses corresponding to said first packet communication terminal;

evaluating, within the first packet communication terminal, a communication link relative to a predetermined criterion and generating an evaluation result; and

switching, at the first packet communication terminal, between a unicast and a multicast mode of operation *based upon the evaluation result*, said step of switching including sending a switch instruction message to said second

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[1] Specification, Figures 9-16.

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packet communication terminal from the first packet communication terminal instructing the second packet communication terminal to also switch between said unicast and multicast mode of operations,

the unicast mode of operation in each of the first and second packet communication terminals including transmitting and receiving via a network address corresponding to a communication link which meets said evaluation criterion, and

the multicast mode of operation in each of the first and second packet communication terminals including transmitting and receiving via all network addresses in the corresponding databases of potential network addresses located in the first and second packet communication terminals.

Famolari describes a method and system for soft handoff of mobile terminals and wireless CDMA networks which use IP multicasting between a mobile terminal and a wireless CDMA IP network.[2]

For the forward link, the wireless IP network backbone of Famolari transmits information to the mobile terminal by broadcasting the information as a multicast message to the mobile terminal's multicast group. The broadcast message is transmitted by the base stations to the mobile terminal via the plurality of multicast network connections between the base stations and the mobile terminal's multicast IP network interfaces. Each multicast message includes the same message information, and thus the same information is sent from the base stations to the mobile terminal through the multicast network connections. Thus, soft handoff of the mobile terminal on the forward link is achieved because the wireless IP network backbone and base stations simultaneously communicate the same information to the mobile terminal through the plurality of multicast network connections. [3]

For the reverse link, the mobile terminal of Famolari transmits information to the wireless IP network backbone by responding to the sender of the multicast message, which is the wireless IP network backbone. Each multicast group member resides at the mobile terminal as a multicast IP network interface. Thus, when the mobile terminal commands

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[2] Famolari paragraph [0014].
[3] Famolari paragraph [0017].

every group participant to respond to the sender of the multicast message, the mobile terminal

sends identical messages to the base stations via the multicast network connections. These

base stations forward these multicast messages to the wireless IP network backbone. Thus,

soft handoff of the mobile terminal on the reverse link is achieved because the mobile

terminal simultaneously communicates the same information to the base stations and wireless

IP network backbone through the plurality of multicast network connections.[4]

In Famolari after initially establishing an IP network connection, *a multicasting agent*

within the IP network assigns an IP multicasting address to the mobile terminal that

identifies the mobile terminal's multicasting group. This IP multicasting address is used by

the IP network itself to distinguish the mobile terminal from other mobile terminals, to

broadcast multicast messages to the mobile terminal, and to receive multicast message

responses from the mobile terminal.[5]

After the multicasting agent assigns the mobile terminal an IP multicasting address,

the mobile terminal then establishes a plurality of network connections and IP network

interfaces between itself and the IP network, each of which includes a unique IP address to

identify the network connection between the IP network and the mobile terminal. These

network connections become the multicast network connections and corresponding multicast

IP network interfaces at the mobile terminal once these network connections join the mobile

terminal's multicast group.[6]

Famolari's FIG. 3 shows the IP Multicasting Soft Handoff process wherein the mobile

terminal establishes, maintains and terminates soft handoff with the IP network. In Famolari,

the mobile terminal first establishes an initial non-multicasting network connection between

itself and the IP network (step 20). *A multicasting agent then assigns the mobile terminal*

an IP multicasting address that identifies the mobile terminal's multicasting group (step

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[4] Famolari paragraph [0018].
[5] Famolari paragraph [0021].
[6] Famolari paragraph [0022].

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22). Next, the mobile terminal establishes a plurality of IP network connections between

itself and the IP network by creating a plurality of IP network interfaces at the mobile

terminal, each of which is assigned an IP network connection address (step 24). These IP

network interfaces become participants in the mobile terminal's multicast group when the

mobile terminal broadcasts a "join" message that instructs these IP network interfaces to

become participants of the mobile terminal's multicast group (step 26). At this point, soft

handoff of the mobile terminal is established because the mobile terminal's multicast group

includes a plurality of multicast IP network interfaces that are located at the mobile terminal

and which are participants in the mobile terminal's multicast group. The process then

proceeds to step 27.[7]

> However, Famolari does not disclose or suggest Applicants' claimed

> ...*evaluating, within the first packet communication terminal, a
> communication link relative to a predetermined criterion and generating an
> evaluation result*; and *switching,* at the first packet communication terminal,
> between a unicast and a multicast mode of operation *based upon the evaluation
> result*...

That is, Famolari discloses that a multicasting agent within the IP network assigns the IP

multicasting address to the mobile terminal. In contrast, in Applicants' claimed invention, it

is the mobile terminal (i.e., first packet communication terminal) itself that determines if and

when to switch between a unicast and multicast mode. With Applicants' claimed invention it

is possible to go from a unicast mode to a multicast mode, and from a multicast mode to a

unicast mode, depending on conditions detected by the mobile. In order to facilitate the

switching between modes of operation, Applicants' invention also provides for a maintenance

of a database of potential network addresses within the mobile node (i.e., first packet

communication terminal), and maintenance of a parallel database of potential network

addresses in a corresponding external node (i.e., second packet communication terminal).

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[7] Famolari paragraph [0047].

Thus, before, during and after any switch between modes of operation, the mobile node (i.e., first packet communication terminal) maintains a database of potential network addresses, and communicates any changes in this database to a corresponding external node.

It appears from the rejections formed in the pending Office Action that it is erroneously assumed that Applicants' present invention is directed to a well-known soft-handover or a forward-error-correction technology (FEC). Applicants respectfully disagree, as next discussed.

In a soft-handover method, like the method as described in Famolari, the same data is transmitted through a plurality of communication lines, for example by transmitting the original data and the redundant coded data of the original data through respective communication lines, the error resistance in the transmitted data can be improved. But in such method, if some of the original data packets are lost in communication lines through which the packets are transmitted, it is impossible to recover or decompress the packet.

However, according to the features of Applicants' Claim 23, when a predetermined number of packets are received through any communication line, the packets can be decompressed, and therefore the features of Applicants' Claim 23 allow improved resistance against packet loss in different types of packet loss patterns. Such improvement is possible, since the transmission of the data is realized without the data overhead that is caused by the transmission of redundant data packets that are generated in a soft-handover transmission method. Thereby, the features of Applicants' Claim 23 presents advantages over the background art, by combining features of the soft-handover method and the FEC technology.

Because Famolari does not disclose or suggest Applicants' claimed

> ...*evaluating, within the first packet communication terminal, a communication link relative to a predetermined criterion and generating an evaluation result*; and *switching,* at the first packet communication terminal, between a unicast and a multicast mode of operation *based upon the evaluation result*...

Famolari also does not disclose or suggest the terminals or computer readable storage devices

recited in Applicants' new Claims 24-29.

New Claim 30 is directed to

A packet communication method for packet communication between a first packet communication terminal and a second packet communication terminal, comprising:

maintaining, at the second packet communication terminal, a database of potential network addresses corresponding to said first packet communication terminal;

receiving, at the second packet communication terminal, database add and delete messages from the first packet communication terminal and maintaining, at the second packet communication terminal, a local database of potential network addresses corresponding to said first packet communication terminal; and

receiving, at said second packet communication terminal, *a switch instruction message from the first packet communication terminal* instructing the second packet communication terminal to switch between a unicast and a multicast mode of operations in conjunction with a switching between said unicast and multicast mode of operations at the first packet communication terminal, *the switch instruction message indicating that the first packet communication terminal has determined that a link detected by the first packet communication terminal does or does not meet a predetermined criteria*,

the unicast mode of operation in each of the first and second packet communication terminals including transmitting and receiving via a network address corresponding to a communication link which meets said evaluation criterion, and

the multicast mode of operation in each of the first and second packet communication terminals including transmitting and receiving via all network addresses in the corresponding databases of potential network addresses located in the first and second packet communication terminals.

Because Famolari only discloses that a multicasting agent within the IP network assigns the

IP multicasting address to the mobile terminal, Famolari fails to disclose or suggest

receiving, at said second packet communication terminal, *a switch instruction message from the first packet communication terminal* instructing the second packet communication terminal to switch between a unicast and a multicast mode of operations in conjunction with a switching between said unicast and multicast mode of operations at the first packet communication terminal, *the switch instruction message indicating that the first packet communication terminal has determined that a link detected by the first*

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> *packet communication terminal does or does not meet a predetermined*
> *criteria,*

Famolari also does not disclose or suggest the terminals or computer readable storage devices recited in Applicants' new Claims 31-33.

MPEP § 2131 notes that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See also MPEP § 2131.02. "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Because Famolari does not disclose or suggest all of the features recited in Claims 23, 25, 27, and 29-33, Famolari does not anticipate the invention recited in Claims 23, 25, 27, and 29-33, and all claims depending therefrom.

Applicants have considered Cannon and submit Cannon does not cure the deficiencies of Famolari. As none of the cited prior art, individually or in combination, disclose or suggest all the elements of independent Claims 23, 25, 27, and 29-33, Applicants submit the inventions defined by Claims 23, 25, 27, and 29-33, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.[8]

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[8] MPEP § 2142 "...the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Accordingly, in view of the present amendment and in light of the previous

discussion, Applicants respectfully submit that the present application is in condition for

allowance and respectfully request an early and favorable action to that effect.

Respectfully submitted,

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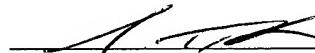
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